

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A direction finding radiation detector for detecting a direction of incidence of radioactive rays, the detector comprising:

three or more scintillators, formed by splitting a single scintillator in a circumferential direction and being arranged to overlap circumferentially, such that: (1) the scintillators are shadowed by each other from radioactive rays incident in circumferential directions, (2) the light emitted from one of the scintillators is not incident on the other scintillators; and (3) the direction of incidence is detected all around in the range of 0° to 360° ,

photoreceptor devices each having a light receiving surface optically coupled to each of the scintillators, wherein

a combination of proportions of radioactive rays incident directly on the respective scintillators and radioactive rays incident indirectly, being shadowed by the other scintillators, varies with the direction of incidence circumferentially, and

the scintillators are connected to amplifiers having respective different gains to shift peak positions with each other, the amplifiers are connected to a single A/D converter, and the A/D converter is connected to a single pulse height analyzer, and

the detector is connected to a computer that calculates a ratio R of counts of photoelectric peaks ascribable to the scintillators by calculating a sum total T and ratios $R = (A/T, B/T, C/T)$, wherein A, B and C are counts of the photoelectric peaks.

2-7. (Canceled)

8. (Previously Presented) A radiation monitoring method comprising the steps of setting the direction finding radiation detector according to claim 1; and

measuring a circumferential radiation using the direction finding radiation detector.

9. (Previously Presented) A radiation monitoring apparatus comprising the direction finding radiation detector according to claim 1.

10. (Currently Amended) A direction finding radiation detector for detecting a direction of incidence of radioactive rays, the detector comprising:

three or more scintillators, formed by splitting a single scintillator in a circumferential direction and being arranged to overlap circumferentially, such that: (1) the scintillators are shadowed by each other from radioactive rays incident in circumferential directions, (2) the light emitted from one of the scintillators is not incident on the other scintillators; and (3) the direction of incidence is detected all around in the range of 0° to 360° ,

photoreceptor devices each having a light receiving surface optically coupled to each of the scintillators, wherein

a combination of proportions of radioactive rays incident directly on the respective scintillators and radioactive rays incident indirectly, being shadowed by the other scintillators, varies with the direction of incidence circumferentially, and

the scintillators are connected to amplifiers having respective different gains to shift peak positions with each other, the amplifiers are connected to a single A/D converter, and the A/D converter is connected to a single pulse height analyzer, and

the detector is connected to a computer that calculates a ratio R of counts of photoelectric peaks ascribable to the scintillators by calculating a sum total T and ratios $R = (A/T, B/T, C/T)$, wherein A, B and C are counts of the photoelectric peaks.

11-12. (Canceled)

13. (Previously Presented) A radiation monitoring method comprising the steps of

setting the direction finding radiation detector according to claim 10; and
measuring a circumferential radiation using the direction finding radiation
detector.

14. (Previously Presented) A radiation monitoring apparatus comprising the
direction finding radiation detector according to claim 10.